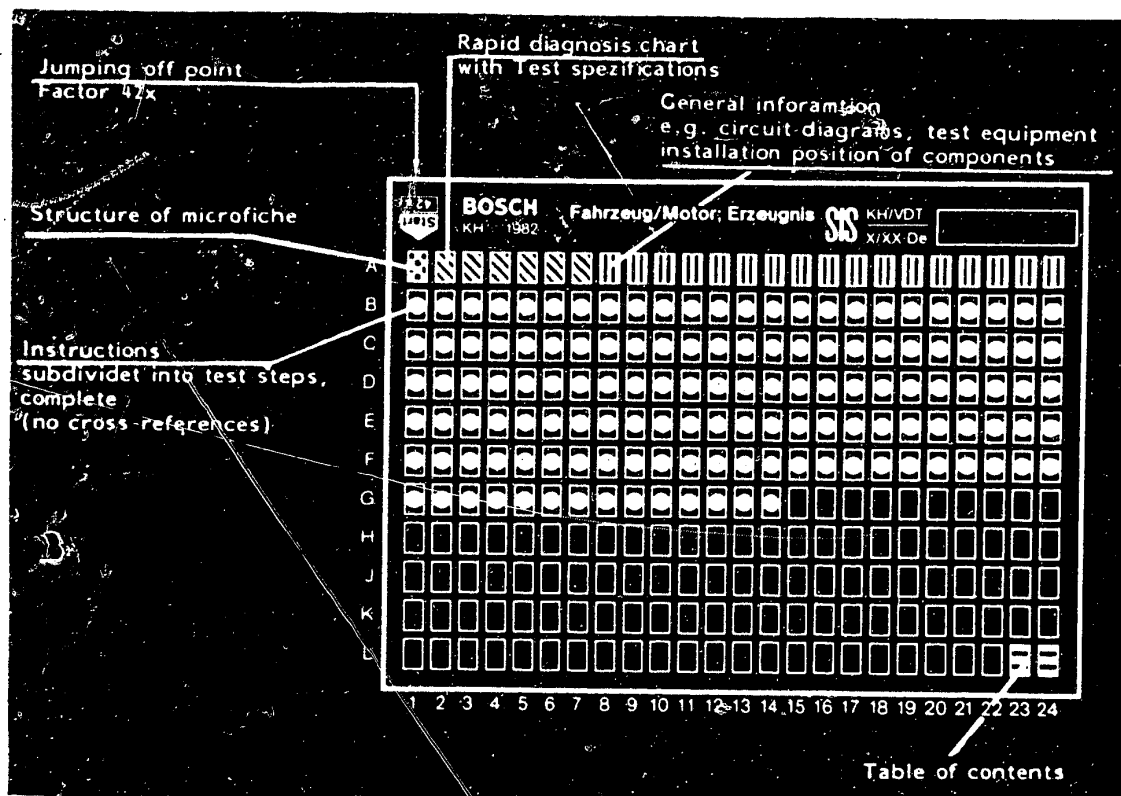


## Structure of microfiche



1. Read from left to right

2. Title of microfiche (appears on each coordinate)

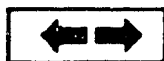
<b>E 16</b>	Product/assembly/test step	
	Vehicle/engine	

Coordinate

3. Limits of section



Beginning



Mid-section



End



One-page section

4. References to relevant test steps in test specifications; coordinate e.g. C6

**C 6**

**A1**

Trouble-shooting program



## 1. Rapid test chart for heating and air-conditioning test adapter

The following rapid test chart makes it possible for the experienced expert to quickly check the system with the test adapter KDHK 0001.

The contents of this chart are limited to the following:

- Sequence of test steps
- Switch position on adapter
- Test instructions and test specifications (readings on adapter)
- References to coordinates of the respective detailed testing and trouble-shooting program.

If detailed information and instructions are required, always proceed in accordance with the trouble-shooting program starting on Coordinate B 1.

### Test conditions

- Check the customer complaints (check operation of automatic heating system in accordance with vehicle owner manual)
- Coolant level O.K.
- Engine running and at normal operating temperature
- Electrical system (fuses, battery voltage) O.K.
- Blower-motor switch at position IIII/blower running at max. speed
- Left-hand and right-hand temperature selector thumb-wheels approximately in center position (22)
- Air-distributor switch on vehicle in position
- Fresh air/circulated air switch (if fitted) in fresh air position.

The ignition must be off when removing plug connectors.



Rapid test chart for electronic automatic heating system (Duo-Heizmatik)  
Test adapter KDHK 0001 with adapter lead KDHK 0004

(automatic heating section can also be tested in vehicles with automatic heating and air-conditioning system up to approx. 6.81).

Test step	Rotary switch position	Test of	Test instructions	Reading/ test specification	Coordinate
1	1	Control unit supply voltage		10...15	B 4
2	2	Passenger-compartment temperature sensor		5...11	B 6
2.1			Spray refrigerant spray into passenger-compartment temperature sensor	Falling during cooling down	B 8
2.2			With blower operating, check flow of air to passenger-compartment temperature sensor (with strip of paper)		B 10
3	3	Left-hand temperature selector thumbwheel	Turn the temperature selector thumbwheel from one end position to the other. Reading must change uniformly between min. and max. After testing, return temperature selector thumbwheel to centre position (22).	Approx. 1.5...8 Min.approx.1 Max.approx.9	B 12
4	4	Right-hand temperature selector thumbwheel	Turn the temperature selector thumbwheel from one end position to the other. Reading must change uniformly between min. and max. After testing, return temperature selector thumbwheel to centre position (22).	Approx. 1.5...8 Min.approx.1 Max.approx.9	B 14

Test steps 5 and 6 deleted

**A3**

Rapid test chart

Mercedes-Benz W 126, C 126, R 107



**A4**

Rapid test chart

Mercedes-Benz W 126, C 126, R 107



Rapid test chart for electronic automatic heating system (Duo-Heizmatik)  
Test adapter KDHK 0001 with adapter lead KDHK 0004

(automatic heating section can also be tested in  
vehicles with automatic heating and air-conditioning  
system up to approx. 6.81)

(continued)

Test step	Rotary switch position	Test of	Test instructions	Reading/ test specification	Coordinate
7	7	Left-hand hot-water valve	Switch on auxiliary switch (S) on test adapter. <u>No</u> heating effect on left - check by feeling	0...3	B 16
7.1			Switch off auxiliary switch (S) on test adapter. Heating effect on left - check by feeling	9...14	B 18
8	8	Left-hand heat exchanger sensor	Test step to come directly after 7.1 (water in heat exchanger must be hot at start of test).	7...12 Slowly falling	B 20
9	9	Right-hand hot-water valve	Switch on auxiliary switch (S) on test adapter. <u>No</u> heating effect on right - check by feeling	0...3	B 22
9.1			Switch off auxiliary switch (S) on test adapter Heating effect on right - check by feeling	9...14	C 1
10		Right-hand heat exchanger sensor	Test step to come directly after 9.1 (water in heat exchanger must be hot at start of test).	7...12 Slowly falling	C 3

**A5**

Rapid test chart

Mercedes-Benz W 126, C 126, R 107



**A6**

Rapid test chart

Mercedes-Benz W 126, C 126, R 107



Rapid test chart for electronic automatic heating system (Duo-Heizmatik)  
 Test adapter KDHK 0001 with adapter lead KDHK 0004  
 (continued)

(automatic heating section can also be tested in  
 vehicles with automatic heating and air-conditioning  
 system up to approx. 6.81)

Test step	Rotary switch position	Test of	Test instructions	Reading/ test specification	Coordinate
11	11	Hot-water pump	(Hot-water pump is standard in type R 107 and all 8-cyl. models) Reset blower-motor switch to position I. Switch off engine. Switch on ignition. Switch on auxiliary switch (S) on test adapter: hot-water pump operating - check by feeling/listening.	0...3	C 5
11.1			Switch off auxiliary switch (S) on test adapter. <u>Hot-water pump not operating</u> - check by feeling/listening.	9...14	C 7

**A 7**

Rapid test chart

Mercedes-Benz W 126, C 126, R 107



**A 8**

Rapid test chart

Mercedes-Benz W 126, C 126, R 107



## 2. General introduction

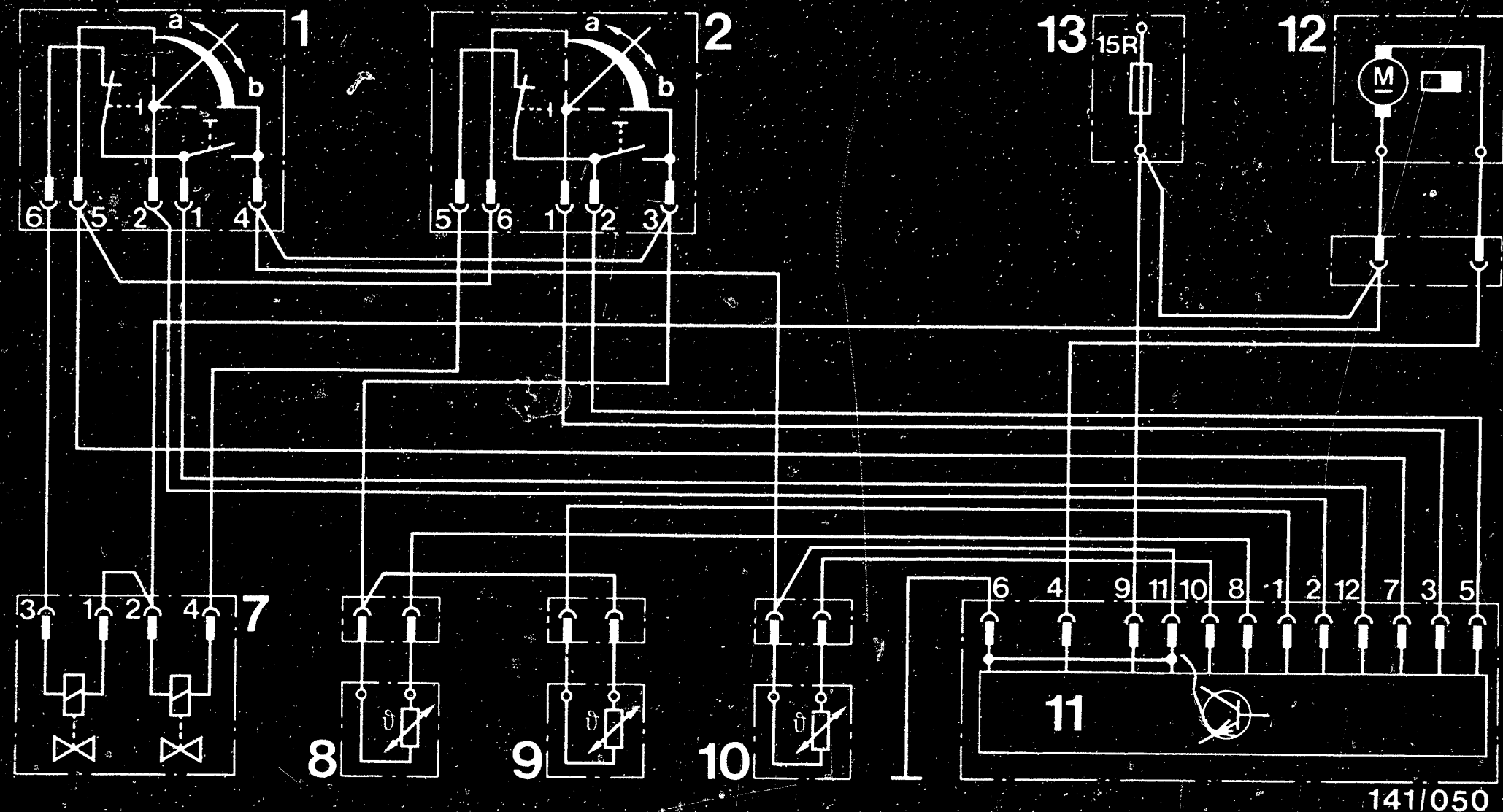
### Automatic heating system

The passenger-compartment temperature is regulated through the electronic control unit, through a chain of resistors, comprising two regulating resistors in the left-hand and right-hand temperature selector thumbwheels, as well as by a passenger-compartment temperature sensor and two temperature sensors on the heat exchanger with temperature-dependent resistances. By turning the temperature selector thumbwheel the resistance is changed by the built-in potentiometer. The passenger-compartment temperature sensor and the temperature sensors on the heat exchanger change their resistance according to the ambient temperature. This total resistance value is compared in the electronic control unit.

The passenger compartment is heated or cooled accordingly. The passenger-compartment temperature sensor is connected by a hose to the air nozzle on the blower box. When the blower is running, air is drawn in through the opening of the passenger-compartment temperature sensor from the passenger compartment. This flow of air guarantees a shorter response time of the passenger-compartment temperature sensor and thus a high control accuracy of the system. The duo hot-water valve regulates the coolant flow through the heat exchanger. It consists of two solenoid-operated valves which are energized by the control unit.

The open-time and closed-time depend on the difference between the actual temperature and the set temperature. When the selector thumbwheel is latched in the "MIN" position, there is always voltage across the duo hot-water valve which is then closed. When the selector thumbwheel is latched in the "MAX" position, the duo hot-water valve is de-energized and is then fully open.





- 1 = Left-hand temperature selector thumbwheel  
 2 = Right-hand temperature selector thumbwheel  
 7 = Duo hot-water valve  
 8 = Temperature sensor on right-hand heat exchanger  
 9 = Temperature sensor on left-hand heat exchanger  
 10 = Passenger-compartment temperature sensor  
 11 = Electronic control unit  
 12 = Hot-water pump  
 13 = Main fuse box
- a = max.  
 b = min.

3. Basic circuit diagram of automatic heating system

**A10**

Basic circuit diagram

Mercedes-Benz W 126, C 126, R 107



**A11**

Basic circuit diagram

Mercedes-Benz W 126, C 126, R 107



#### 4. Testers and tools

Heating and air-conditioning  
test adapter

KDHK 0001

Adapter lead for automatic  
heating system

KDHK 0004

Multimeter ETE 014.00  
or e.g. Pontavi

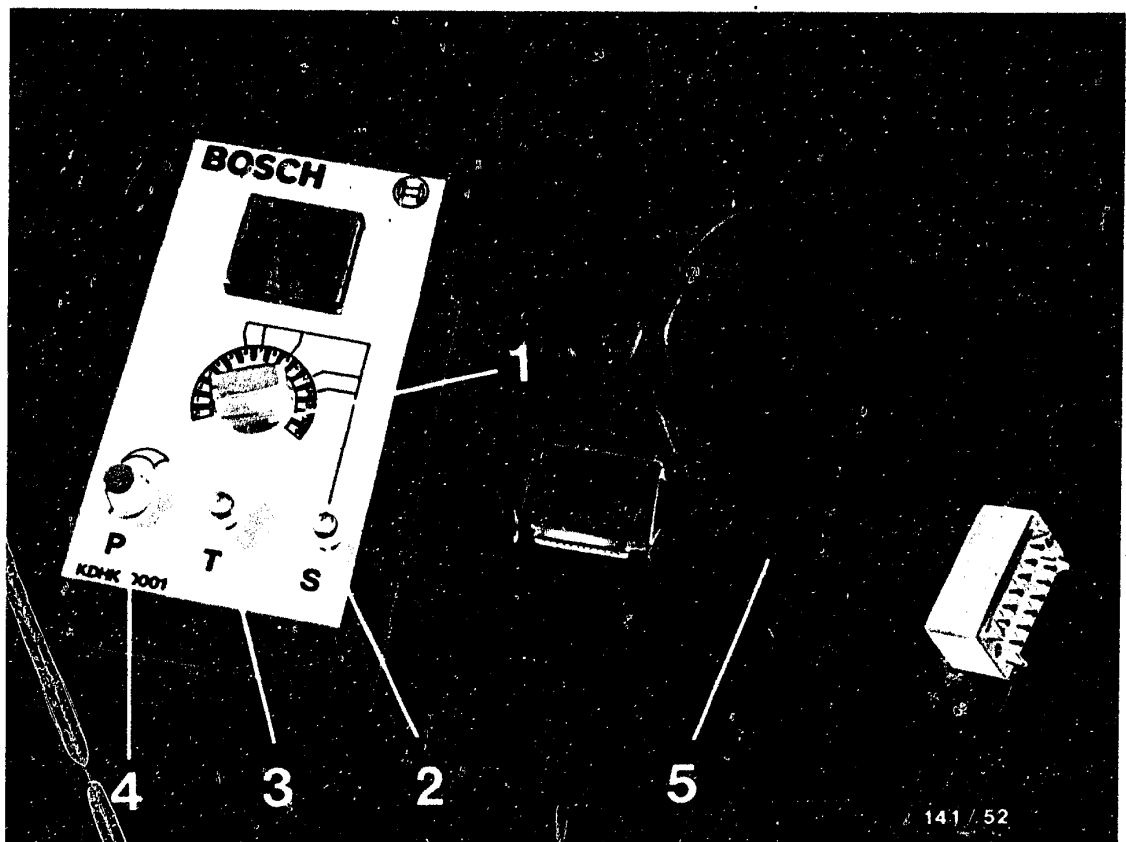
0 684 101 400  
commercially  
available

Refrigerant spray

commercially  
available







#### 4.1 Heating and air-conditioning test adapter (KDHK 0001)

- 1 = Rotary switch (S1)
- 2 = Auxiliary switch (S)
- 3 = Push-button (T)
- 4 = Potentiometer (P)
- 5 = Adapter lead for automatic heating system  
(KDHK 0004)



## Explanatory notes on heating and air-conditioning test adapter KDHK 0001

The heating and air-conditioning test adapter is used for checking the peripherals of heating control/air-conditioning systems. The electronic control units are not checked.

### Construction

The test adapter is constructed so that, using the rotary switch (S1), the individual components as well as the electric leads are switched on and/or tested one after the other. Using the auxiliary switch (S), a certain component group can be checked for 2 different functions.

Push-button (T) and potentiometer (P) are not needed for the MB automatic heating system (Duo-Heizmatik).

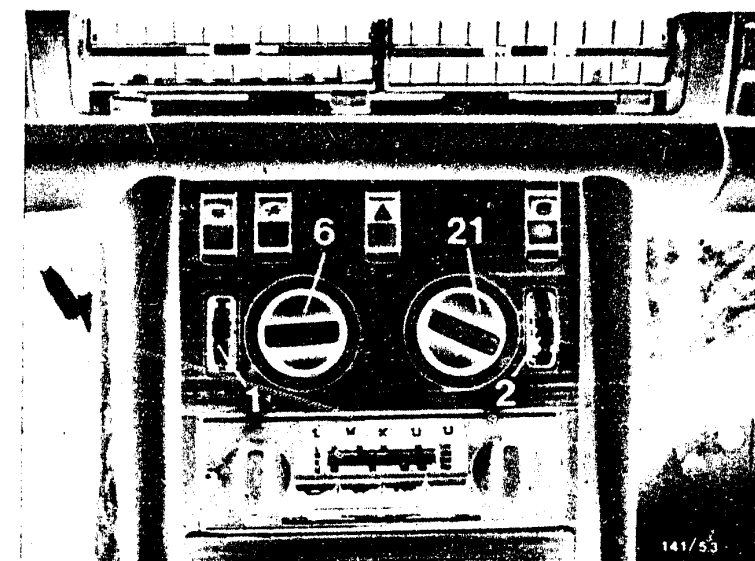
The adapter lead KDHK 0004 is used for checking the system.

### Note on the air-conditioning system up to June 81 (bottom picture)

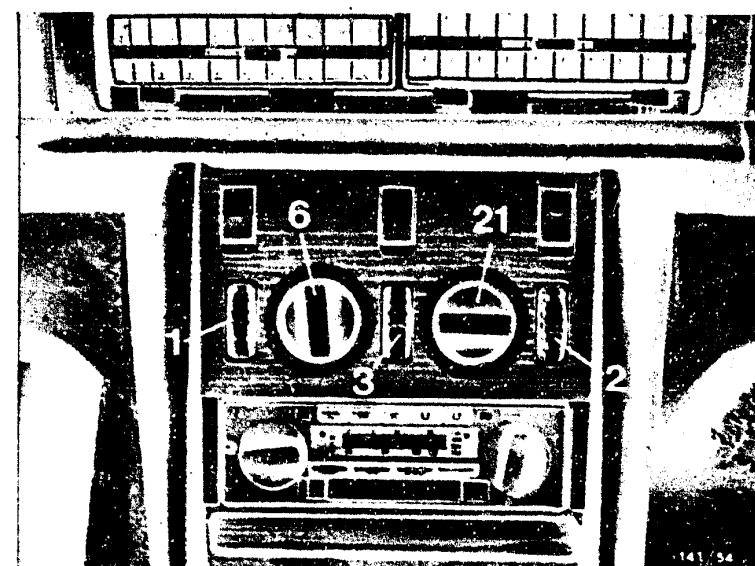
In vehicles equipped with this air-conditioning system, the test adapter can only be used for checking the components belonging to the automatic heating system (Duo-Heizmatik).

Use adapter lead KDHK 0004.

The test procedure is the same as that for the automatic heating system.



- Automatic heating system controls
- 1 = Temp. selector thumbwheel LH
  - 2 = Temp. selector thumbwheel RH
  - 3 = Air-conditioning temperature selector thumbwheel
  - 6 = Blower-motor switch
  - 21 = Air-distributor switch
- Controls of automatic heating system with air conditioner (up to 6.81)



**A14**

Heating and air-conditioning test adapter  
Mercedes-Benz W 126, C 126, R 107



**A15**

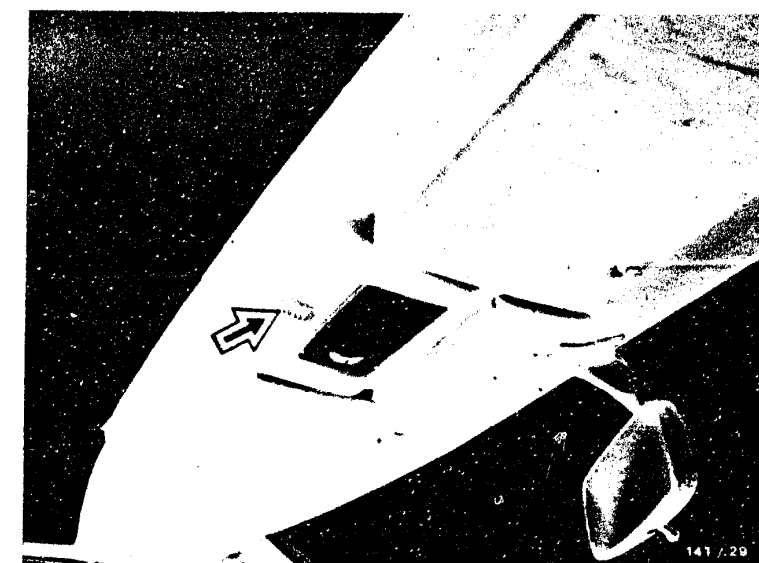
Heating and air-conditioning test adapter  
Mercedes-Benz W 126, C 126, R 107



## 5. Installation position of components

In vehicle types W 126 as of 9.81 and C 126 the passenger-compartment temperature sensor is in the roof above the interior lamp (see picture, arrow). Removal and installation is through the opening in the interior lamp.

In vehicle types R 107 and W 126 up to 9.81 the passenger-compartment temperature sensor is in the centre of the instrument panel above the centre nozzles. (For removal and installation it is necessary to remove the glove-compartment box).

**A16**

Installation position of components  
Mercedes-Benz W 126, C 126, R 107

**A17**

Installation position of components  
Mercedes-Benz W 126, C 126, R 107



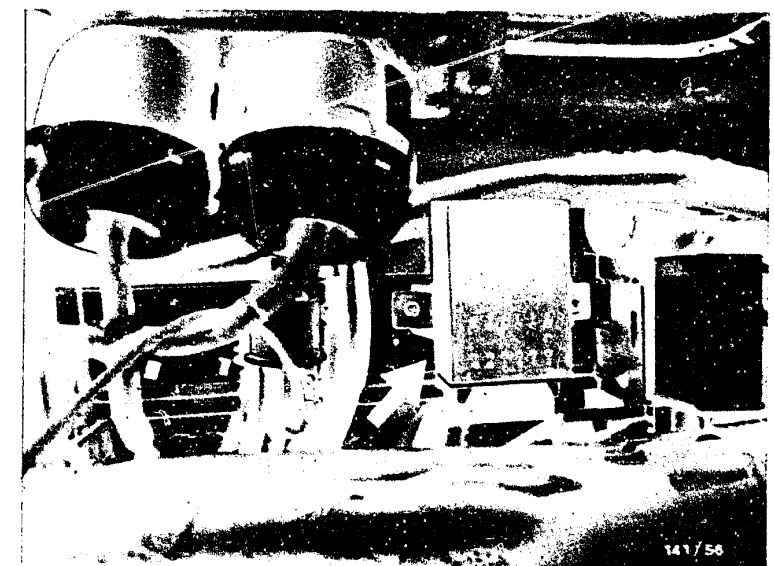
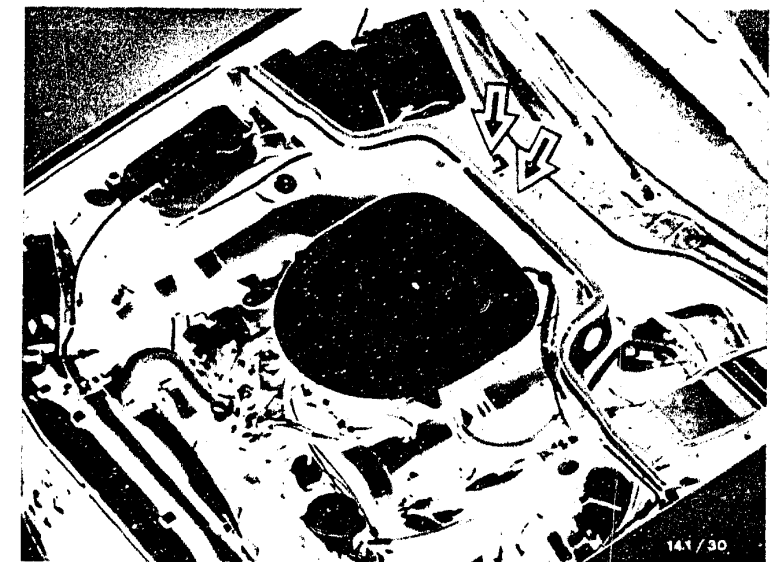
The Duo hot-water valve and the hot-water pump are in the special equipment compartment on the right-hand side as viewed in the forward direction of travel (see top picture, arrows).

Note:

The hot-water pump is only standard in type 107 and in all 8-cylinder models.

Electronic control unit (temperature controller)

The electronic control unit is below the glove compartment, behind the footwell panelling (see bottom picture, arrow).



**A18**

Installation position of components  
Mercedes-Benz W 126, C 126, R 107



**A19**

Installation position of components  
Mercedes-Benz W 126, C 126, R 107



Left-hand/right-hand heat exchanger sensors (Types W 126, C 126)

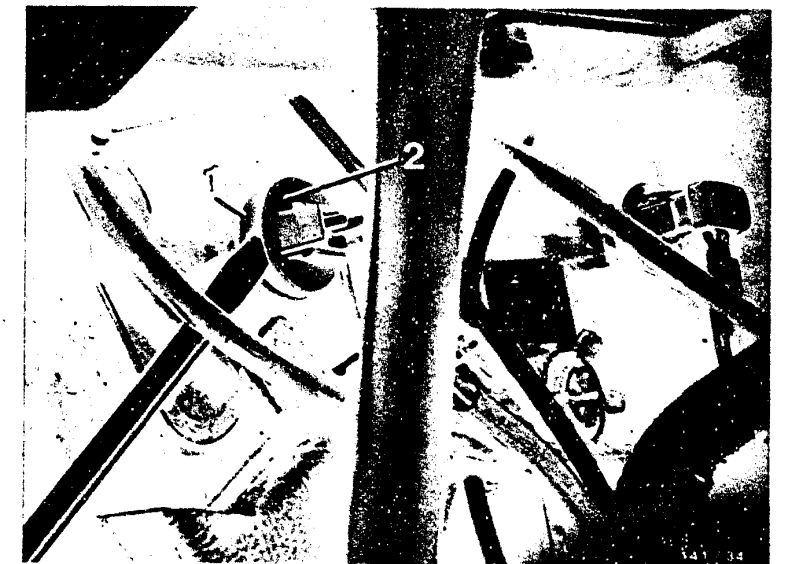
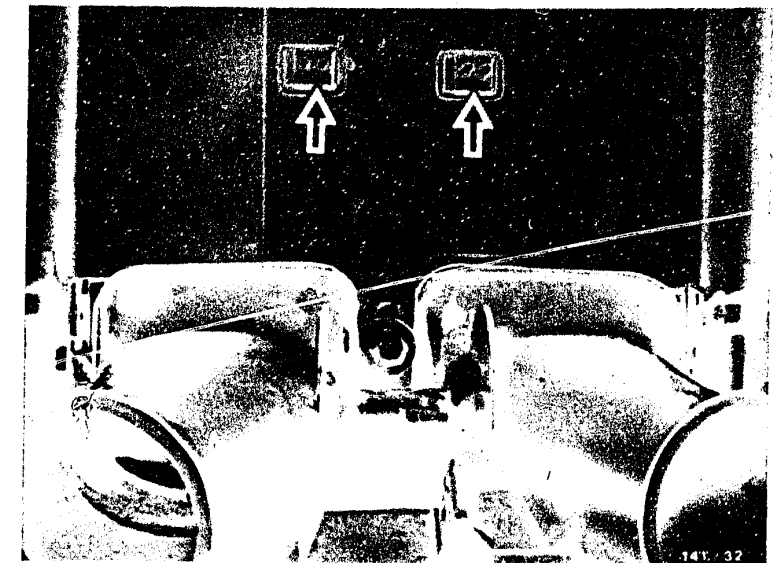
Both sensors for the left-hand and right-hand heat exchanger sides are in the heater box (see top picture, arrows).

Note:

The heat-exchanger sensors are only accessible after removing the centre console cover (ashtray, switch and radio must be removed).

Left-hand/right-hand heat exchanger sensors (Type R 107, bottom picture)

These sensors consist of a guide tube (1) and the sensor (2). When removing a sensor with a screwdriver, apply the screwdriver only between the collar of the guide tube and the collar of the sensor (not between collar of guide tube and heater box since guide tube can only be properly fastened in place again by removing the entire heater box)!



**A20**

Installation position of components  
Mercedes-Benz W 126, C 126, R 107



**A21**

Installation position of components  
Mercedes-Benz W 126, C 126, R 107



## 6. Trouble-shooting according to test steps

### 6.1 Test conditions

- Check the customer complaints  
(check operation of automatic heating system in accordance with vehicle owner manual)
- Coolant level O.K.
- Engine running and at normal operating temperature
- Electrical system (fuses, battery voltage) O.K.
- Blower-motor switch at position IIII/blower running at max. speed
- Left-hand and right-hand temperature selector thumbwheels approximately in centre position (22)
- Air-distributor switch on vehicle in position
- Fresh air/circulated air switch (if fitted) in fresh air position

In the detailed trouble-shooting starting on Coordinate B 2, go through the test steps one after the other. Only if a malfunction is indicated, proceed with the trouble-shooting which is set out underneath the test steps.



## 6.2 Connection of adapter lead

Switch off ignition. Remove right-hand footwell panelling. To do this, loosen 5 screws (see top picture, arrows).

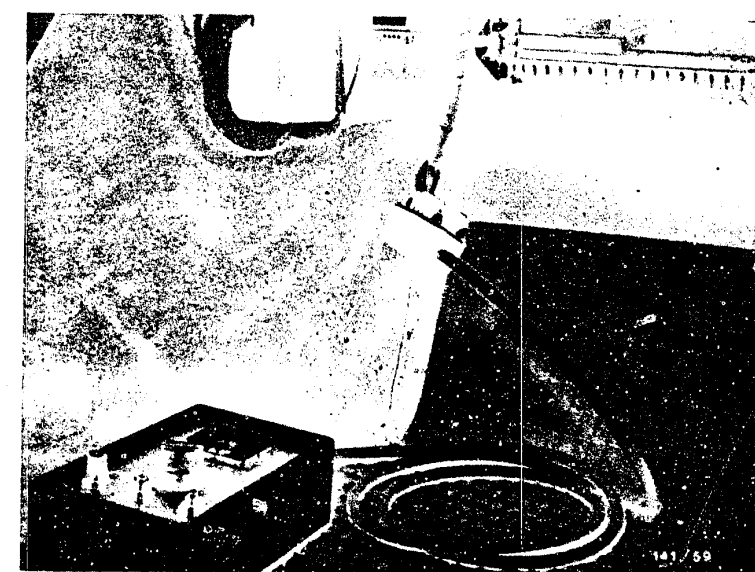
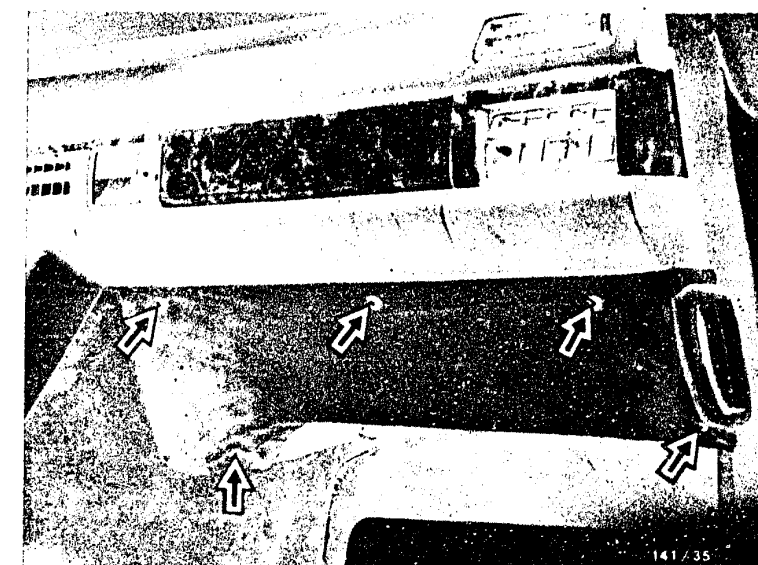
Remove plug from electronic control unit and connect to test adapter KDHK 0001 using adapter lead KDHK 0004 (see bottom picture).

Start engine.

### Note:

Carry out the trouble-shooting with the aid of the test chart.

If the connection between control-unit plug and adapter lead or adapter lead and test adapter becomes undone, always first of all set the rotary switch on the test adapter to "0" and switch off the ignition.



**B2**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



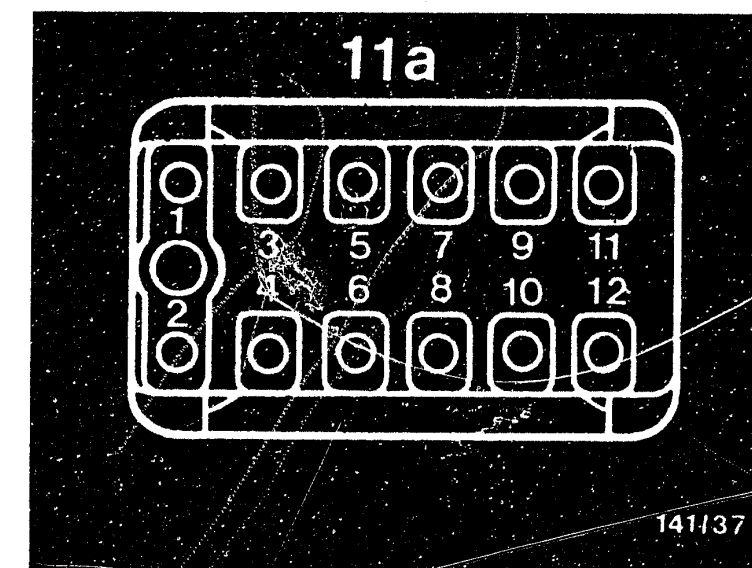
**B3**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



<u>Test step: 1</u>		Reading	Testing
Operation			
<u>Rotary switch position (S1)</u>	1		
<u>Measuring equipment:</u> Test adapter			
<u>Measuring range:</u> 0 ... 15			
<u>Operation in vehicle:</u> Engine running			
<u>Additional operation</u>			



11a = Control-unit plug

#### Trouble-shooting with multimeter:

Using voltmeter, test from control-unit plug (11a) pin 6 to + term. 30 and from pin 9 to ground. Reading should be approx. battery voltage. Eliminate contact resistances at plug-in connections.

If reading greater than battery voltage, alternator regulator is defective.

**B4**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



**B5**

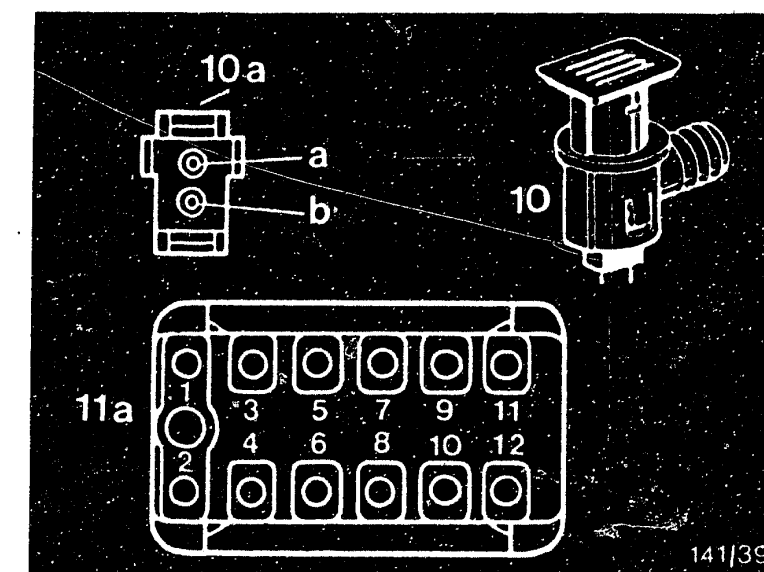
Trouble-shooting

Mercedes-Benz W 126, C 126, R 107

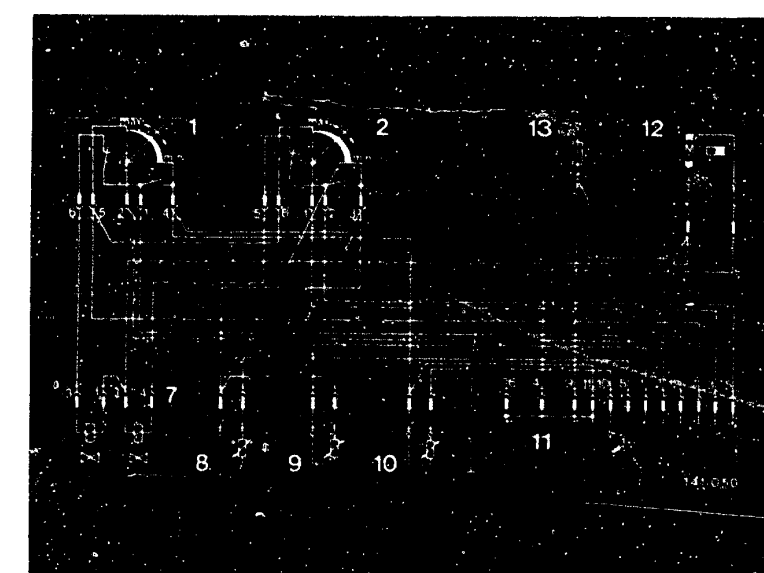




Test step: 2		Reading	Testing
Operation			
<u>Rotary switch position (S1)</u>	2		
<u>Measuring equipment:</u> Test adapter			
<u>Measuring range:</u> 0 ... 15			
<u>Operation in vehicle:</u> Engine running			
<u>Additional operation</u>			



- 10 = Passenger-compartment temperature sensor  
 10a = Plug for passenger-compartment temperature sensor  
 11a = Control-unit plug



#### Trouble-shooting with multimeter:

Switch off ignition. Using ohmmeter, test the following leads for continuity. (Reading approx. 0  $\Omega$ ): from plug (10a) pin a to plug (11a) pin 10, from plug (10a) pin b to plug (11a) pin 11.

Test leads for short circuit: connect ohmmeter between pin 10 and pin 11 on plug (11a). Reading  $\infty \Omega$  (plug (10a) of passenger-compartment temperature sensor removed).

Test resistance of passenger-compartment temperature sensor between pins on passenger-compartment temperature sensor: reading should be approx. 8 - 16 k $\Omega$  at approx. 15 - 30°C at temperature sensor.

**B6**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



**B7**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



Test step: 2.1			
Operation		Reading	Testing
Rotary switch position (S1)	2	On test adapter  Reading falling during cooling down	Component: Passenger-compartment temperature sensor
Measuring equipment: Test adapter			Operation: Change of resistance
Measuring range: 0 ... 15			
Operation in vehicle: Engine running			Malfunction: Not falling during cooling down
Additional operation Spray refrigerant spray into sensor (top picture)			

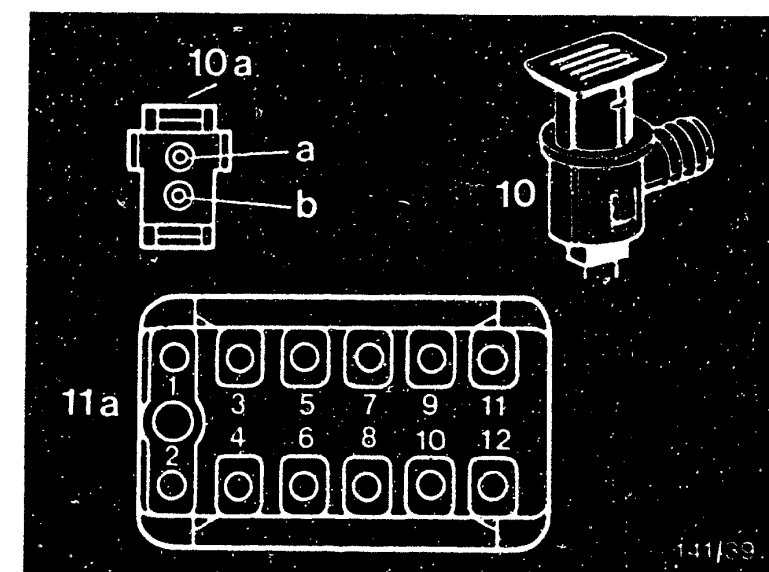


- 10 = Passenger-compartment temperature sensor
- 10a = Plug for passenger-compartment temperature sensor
- 11a = Control-unit plug

#### Trouble-shooting with multimeter:

Switch off ignition. Test resistance of passenger-compartment temperature sensor between pins. Reading should be approx. 8 - 16 k $\Omega$  at approx. 15 - 30°C at temperature sensor. Spray passenger-compartment temperature sensor with refrigerant spray. Resistance must increase. If so, passenger-compartment temperature sensor O.K.

Using ohmmeter, test the following leads for continuity (reading = approx. 0  $\Omega$ ): from plug (10a) pin a to plug (11a) pin 10, from plug (10a) pin b to plug (11a) pin 11. Test leads for short circuit: connect ohmmeter between pin 10 and pin 11 on plug (11a). Reading  $\infty\Omega$ . (Plug (10a) of passenger-compartment temperature sensor removed).



**B8**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



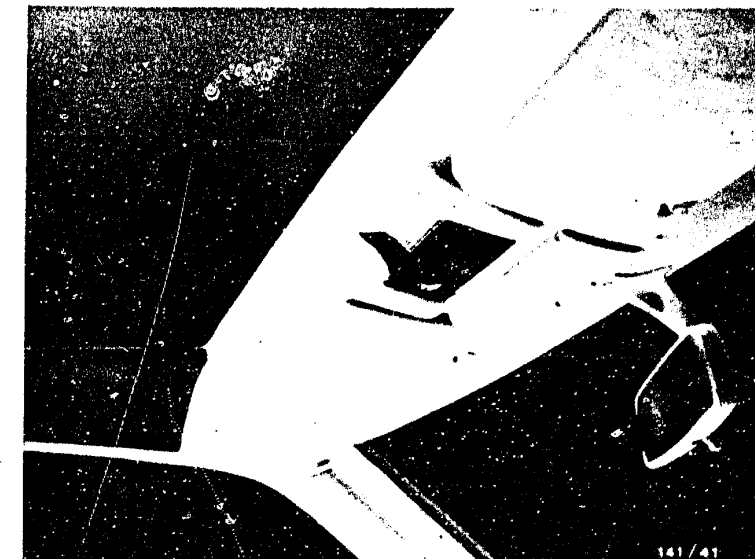
**B9**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



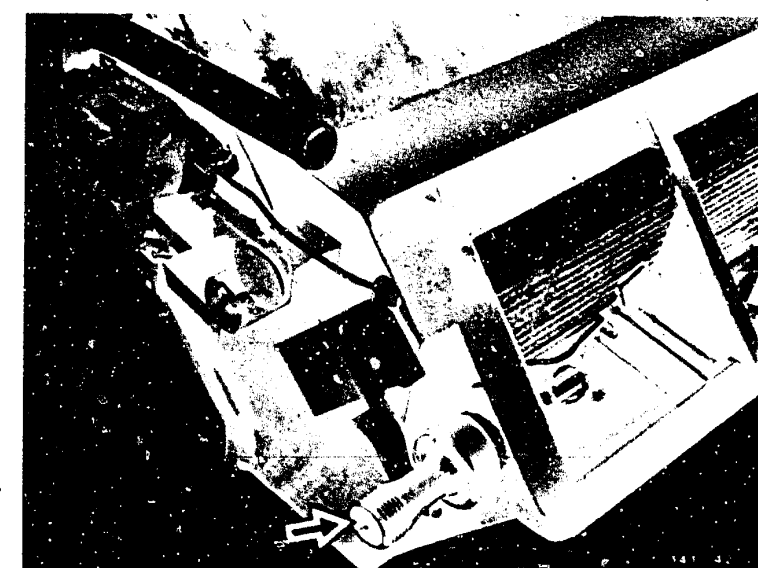
Test step: 2.2		Reading	Testing
Operation			
<u>Rotary switch position (S1)</u>	2		
<u>Measuring equipment:</u> Paper strip or similar			
<u>Measuring range:</u>			
<u>Operation in vehicle:</u> Engine running, Blower-motor switch in position IIII			
<u>Additional operation</u> Hold paper strip in front of air opening (see top picture)			



#### Trouble-shooting:

Check hose between passenger-compartment temperature sensor housing and air nozzle for leaks and security.

The "air nozzle" is fitted on the right-hand side behind the blower housing (see bottom picture, arrow).



**B10**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



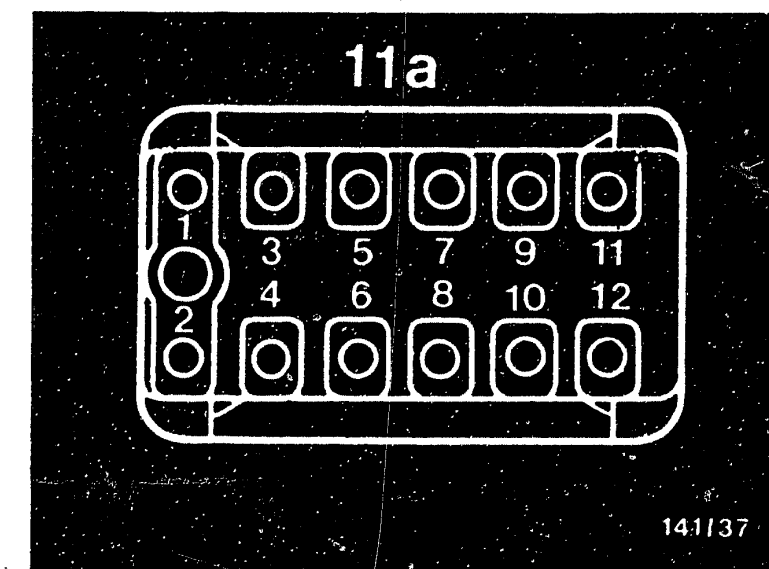
**B11**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



Test step: 3		
Operation		Reading
Rotary switch position (S1)	3	On test adapter approx. 1.5 ... 8.5 Min. approx. 1 Max. approx. 9
Measuring equipment: Test adapter		Reading must change uniformly between "min." and "max".
Measuring range: 0 ... 15		After testing, return temperature selector thumbwheel to centre position (22).
Operation in vehicle: Engine running		
Additional operation Turn temperature selector thumbwheel from min. to max.		
		Testing
		Component: Left-hand temperature selector thumbwheel (not supplied by Bosch)
		Operation: Change of resistance
		Malfunction: Reading jumps or no reading

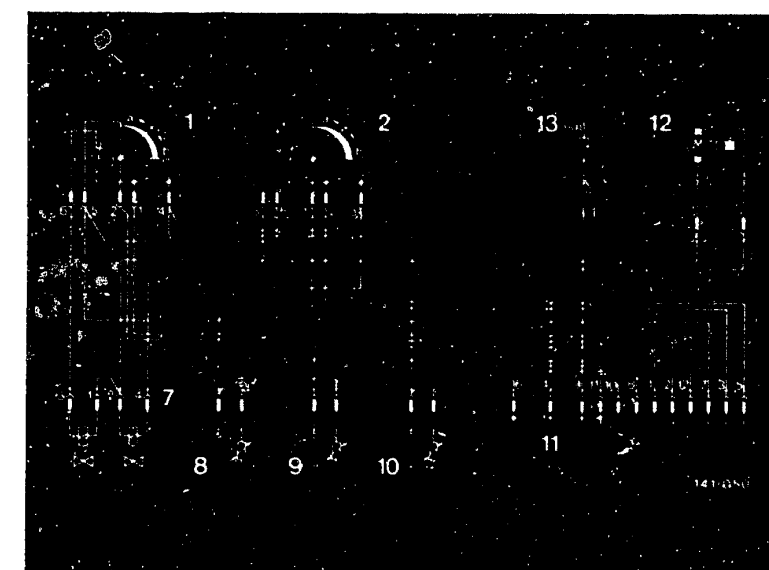


11a = Control-unit plug

#### Trouble-shooting:

If reading jumps between the latch-in positions "min." and "max." = temperature selector thumbwheel defective, replace.

If no reading, check for short circuit and open circuit in lead from control-unit plug (11a) pin 2 to temperature selector thumbwheel.



**B12**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



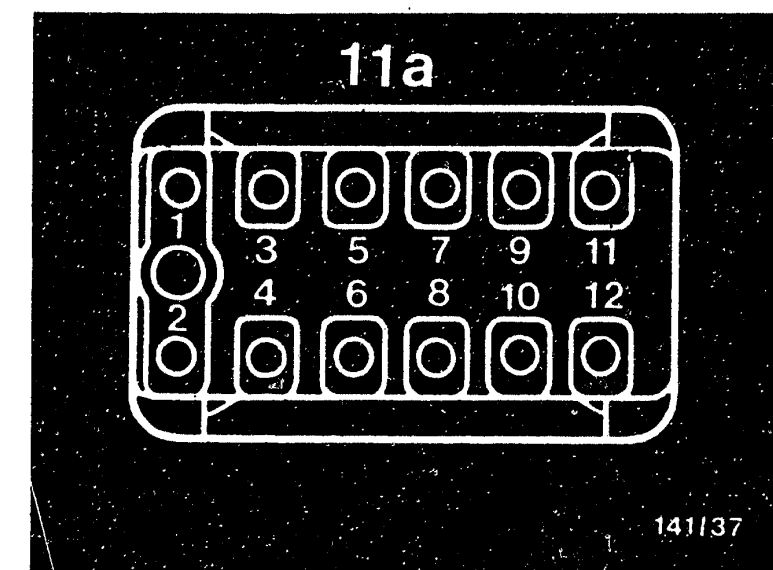
**B13**

Trouble-shooting

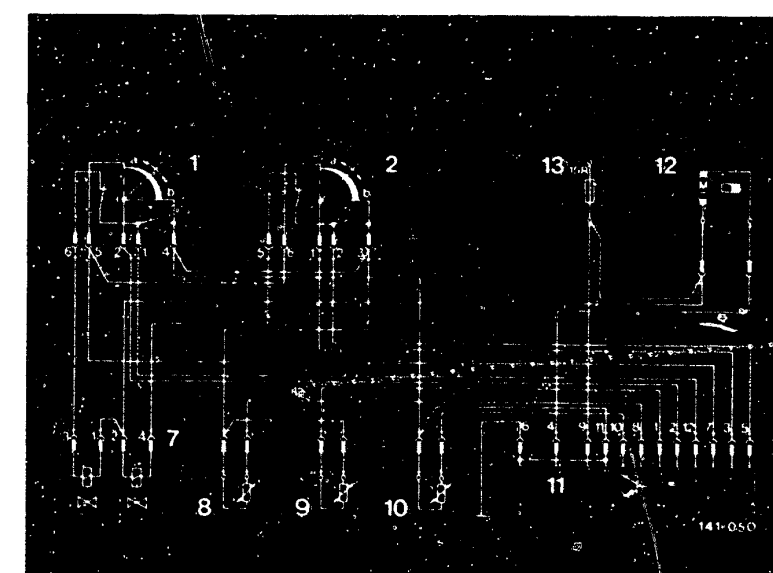
Mercedes-Benz W 126, C 126, R 107



Test step: 4		Reading	Testing
Operation			
<u>Rotary switch position (S1)</u>	4	On test adapter approx. 1.5 ... 8 Min. approx. 1 Max. approx. 9  Reading must change <u>uniformly</u> between "min." and "max."	<u>Component:</u> Right-hand temperature selector thumbwheel (not supplied by Bosch)
<u>Measuring equipment:</u> Test adapter			
<u>Measuring range:</u> 0 ... 15		After testing, return <u>temperature selector</u> <u>thumbwheel</u> to <u>centre position (22).</u>	<u>Operation:</u> Change of resistance
<u>Operation in vehicle:</u> Engine running			
<u>Additional operation</u> Turn temperature selector thumbwheel from min. to max.			<u>Malfunction:</u> Reading jumps or no reading



11a = Control-unit plug



#### Trouble-shooting:

If reading jumps between the latch-in positions "min." and "max." = temperature selector thumbwheel defective, replace.

If no reading, check for short circuit and open circuit in lead from control-unit plug (11a) pin 3 to temperature selector thumbwheel.

**B 14**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



**B 15**

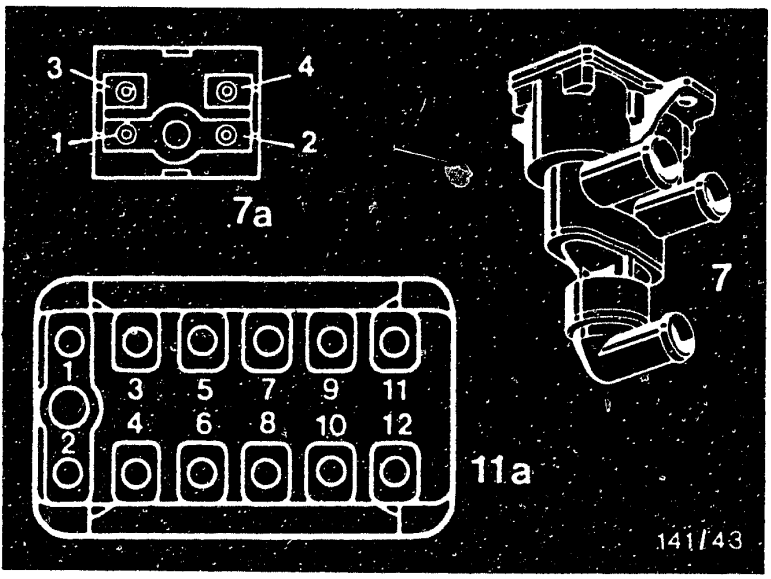
Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



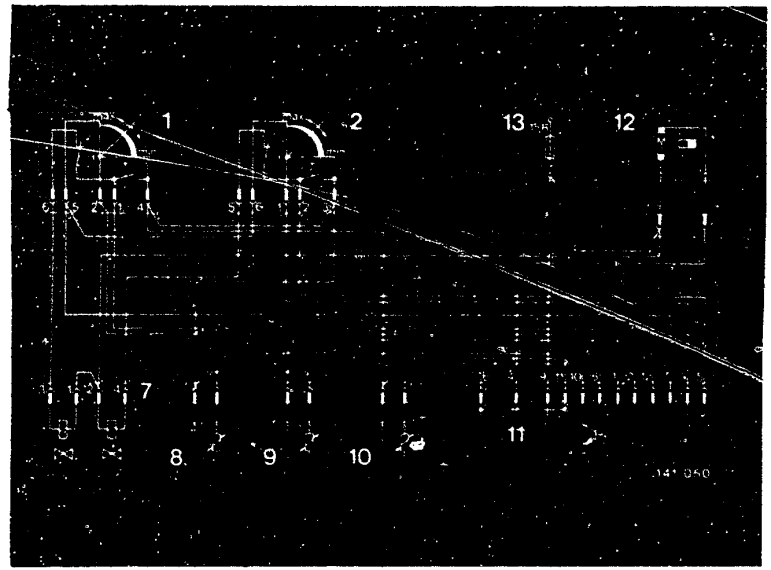
Test step: 7 (5 and 6 deleted)

Operation		Reading	Testing
Rotary switch position (S1)	7	On test adapter 0 .... 3	Component: Left-hand hot-water valve (open when de-energized)
Measuring equipment: Test adapter		Check by feeling that there is <u>no heating</u> effect on left.	
Measuring range: 0 ... 15			Operation: Closing of hot-water inlet
Operation in vehicle: Engine running			
Additional operation Press auxiliary switch "S" on test adapter.			Malfunction: Despite auxiliary switch "S" being pressed, there is a heating effect

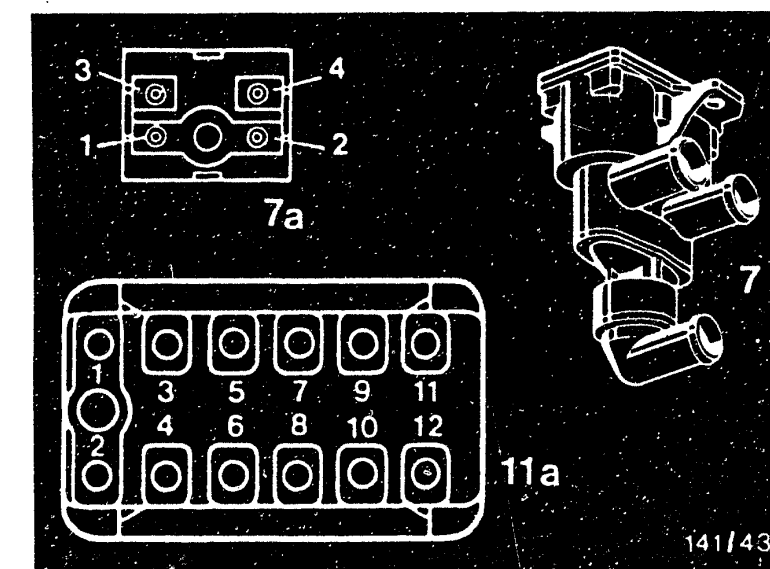


7 = Duo hot-water valve  
7a = Plug for duo hot-water valve  
11a= Control-unit plug

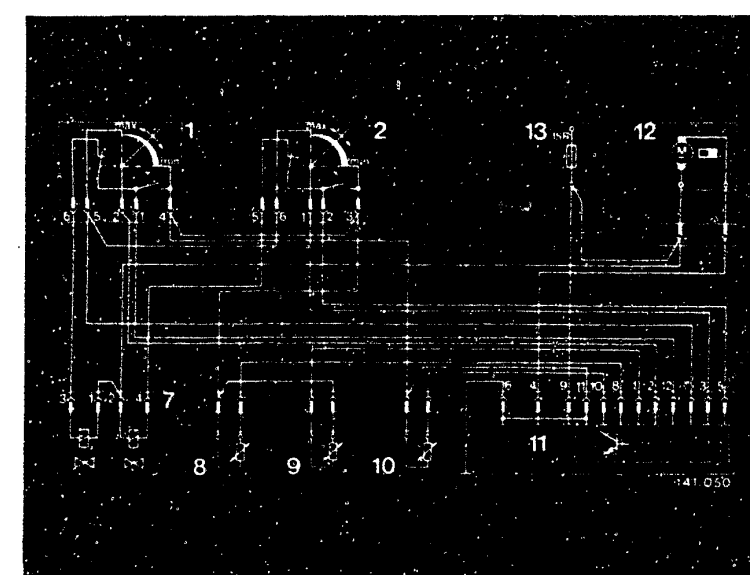
Trouble-shooting with multimeter:  
Switch off ignition. Using ohmmeter, test lead from control-unit plug (11a) pin 12 through left-hand temperature selector thumbwheel to plug (7a) pin 4. Reading approx. 0 Ω (temperature selector thumbwheel in position 22).  
Using voltmeter, test plug (7a) pin 2 to ground for approx. battery voltage (ignition on). If leads are O.K. and battery voltage present and still there is a heating effect, then replace hot-water valve (7) - defective.



Test step: 7.1			
Operation		Reading	Testing
Rotary switch position (S1)	7	On test adapter	Component: Left-hand hot-water valve (open when de-energized)
		9 ... 14	
Measuring equipment: Test adapter		Check by feeling that there is a <u>heating</u> <u>effect</u> on left.	
Measuring range: 0 ... 15			
Operation in vehicle: Engine running			
Additional operation Press auxiliary switch "S" on test adapter again (unlatch).			
			Operation: Hot-water inlet open
			Malfunction: Despite reading approx. 9...14 no heating efect



7 = Duo hot-water valve  
7a = Plug for duo hot-water valve  
11a = Control-unit plug



#### Trouble-shooting with multimeter:

Despite reading approx. 9 ... 14 no heating effect: hot-water valve electrically O.K., but mechanically defective - replace.

Note: If system only heats at low engine speed, then replace hot-water valve.

**B 18**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



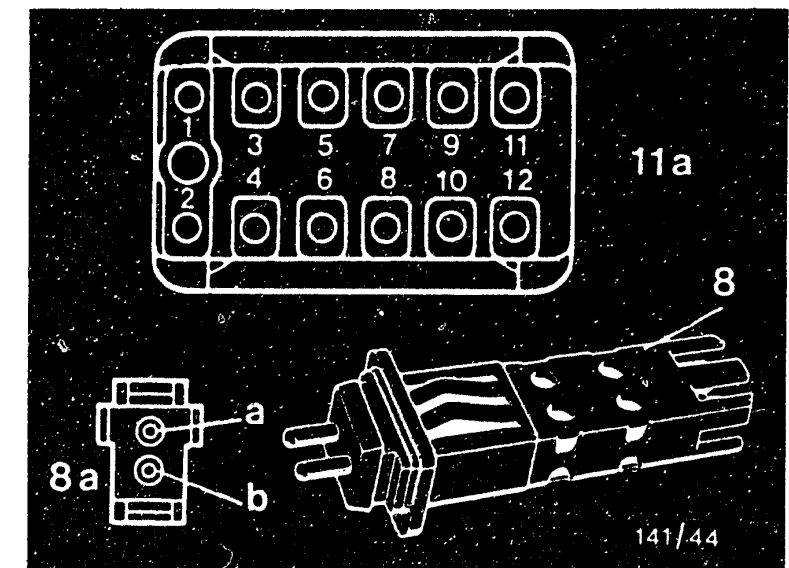
**B 19**

Trouble-shooting

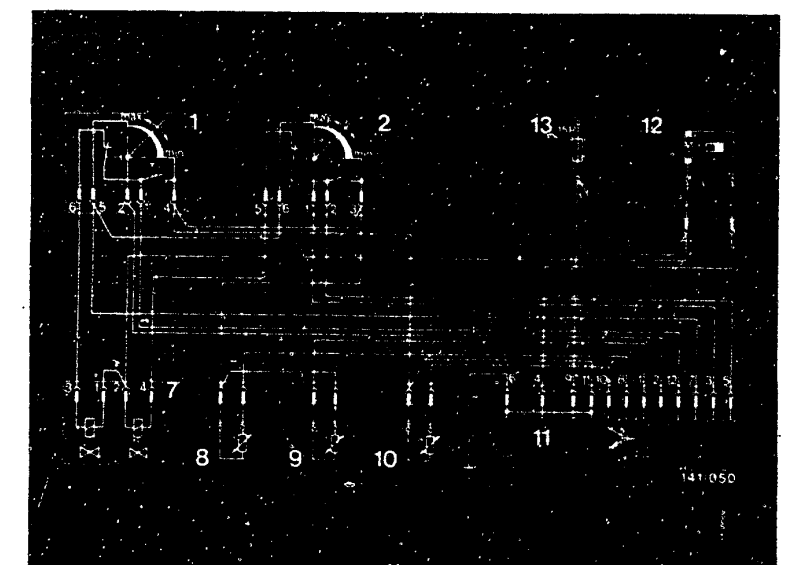
Mercedes-Benz W 126, C 126, R 107



Test step: 8 must come immediately after test step 7.1!			
Operation		Reading	Testing
<u>Rotary switch position (S1)</u>	8	On test adapter  7 ... 12 Slowly falling	<u>Component:</u> Temperature sensor on left-hand heat exchanger
<u>Measuring equipment:</u> Test adapter			<u>Operation:</u> Change of resistance
<u>Measuring range:</u> 0 ... 15			
<u>Operation in vehicle:</u> Engine running			
<u>Additional operation:</u>			<u>Malfunction:</u> Reading approx. 0 or approx. 15, not slowly falling



- 8 = Temperature sensor on heat exchanger
- 8a = Plug for temperature sensor on heat exchanger
- 11a = Control-unit plug



#### Trouble-shooting with multimeter:

Ignition switched off: using ohmmeter, test the following leads for continuity (reading approx. 0  $\Omega$ ): from plug (8a) pin a to control-unit plug (11a) pin 1, from plug (8a) pin b to control-unit plug (11a) pin 11.

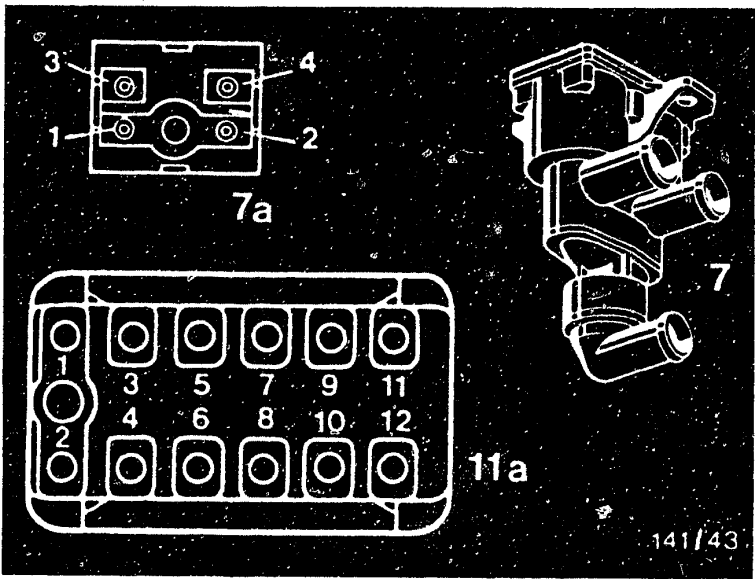
Test leads for short circuit: connect ohmmeter to control-unit plug (11a) between pin 1 and 11, reading should be  $\infty\Omega$ . (Plug (8a) of temperature sensor removed). Test resistance of temperature sensor: connect ohmmeter between pins. Reading should be approx. 8 - 16 k $\Omega$  at approx. 15 - 30°C at temperature sensor. Spray temperature sensor with refrigerant spray. Resistance must increase. If so, temperature sensor O.K.

Note: If reading does not "fall slowly", the hot water in the heat exchanger may already have cooled down too much. In this case, turn the rotary switch (S1) on the test adapter for at least 15 seconds to position 7 (auxiliary switch (S) unlatched). Then proceed with test step 8.





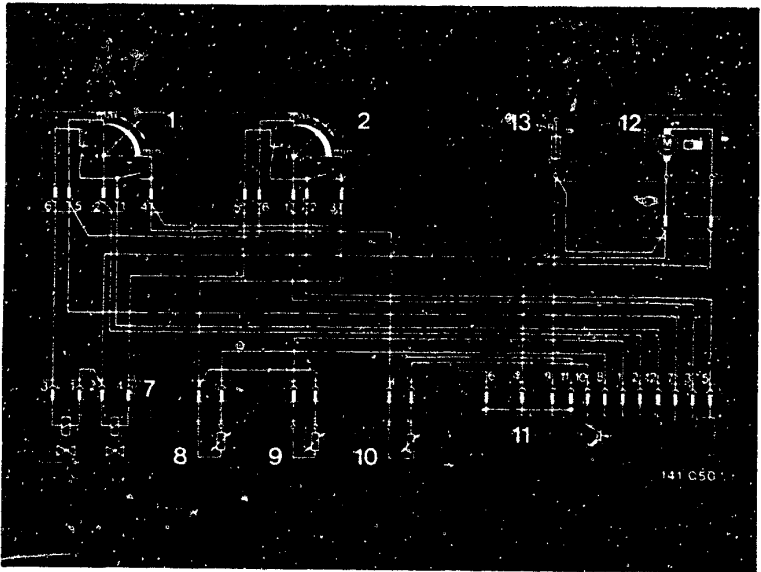
Test step: 9			
Operation		Reading	Testing
<u>Rotary switch position (S1)</u>	9	On test adapter  0 ... 3  Check by feeling that there is <u>no heating effect</u> on right.	Component: <u>Right-hand</u> hot-water valve (open when de-energized)
<u>Measuring equipment:</u> Test adapter			
<u>Measuring range:</u> 0 ... 15			<u>Operation</u> Closing of hot-water inlet
<u>Operation in vehicle:</u> Engine running			
<u>Additional operation</u> Press auxiliary switch "S" on test adapter.			<u>Malfunction:</u> Despite auxiliary switch "S" being pressed, there is a heating effect



- 7 = Duo hot-water valve
- 7a = Plug for duo hot-water valve
- 11a = Control-unit plug

Trouble-shooting with multimeter:

Switch off ignition. Using ohmmeter, test lead from control-unit plug (11a) pin 5 through right-hand temperature selector thumbwheel to plug (7a) pin 3. Reading approx. 0 Ω (temperature selector thumbwheel in position 22).  
Using voltmeter, test plug (7a) pin 1 to ground for approx. battery voltage (ignition on). If leads are O.K. and battery voltage present and still there is a heating effect, then replace hot-water valve (7) - defective.

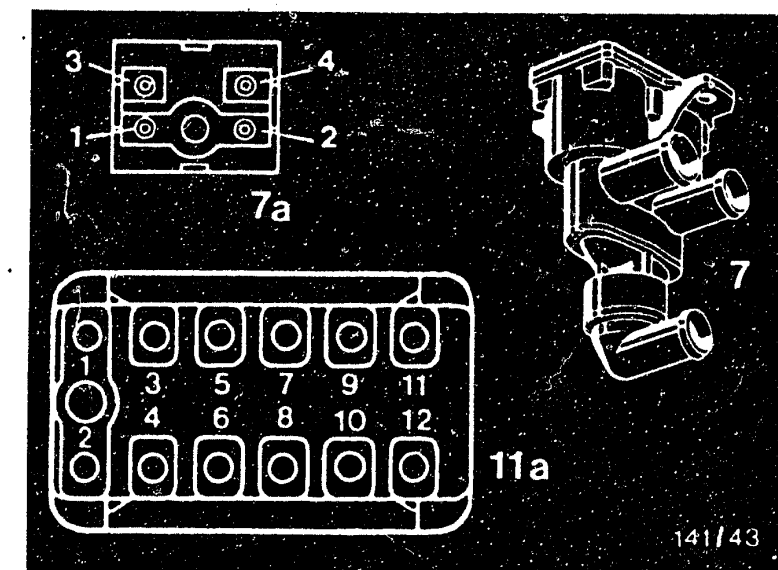


Test step: 9.1		Reading	Testing
Operation			
<u>Rotary switch position (S1)</u>	9	On test adapter  9 ... 14  Check by feeling that there is a <u>heating effect</u> on right.	Component: <u>Right-hand</u> hot-water valve (open when de-energized)
<u>Measuring equipment:</u> Test adapter			
<u>Measuring range:</u> 0 ... 15			
<u>Operation in vehicle:</u> Engine running			
<u>Additional operation</u> Press auxiliary switch "S" on test adapter again (unlatch).			<u>Malfunction:</u> Despite reading approx. 9...14 no heating effect

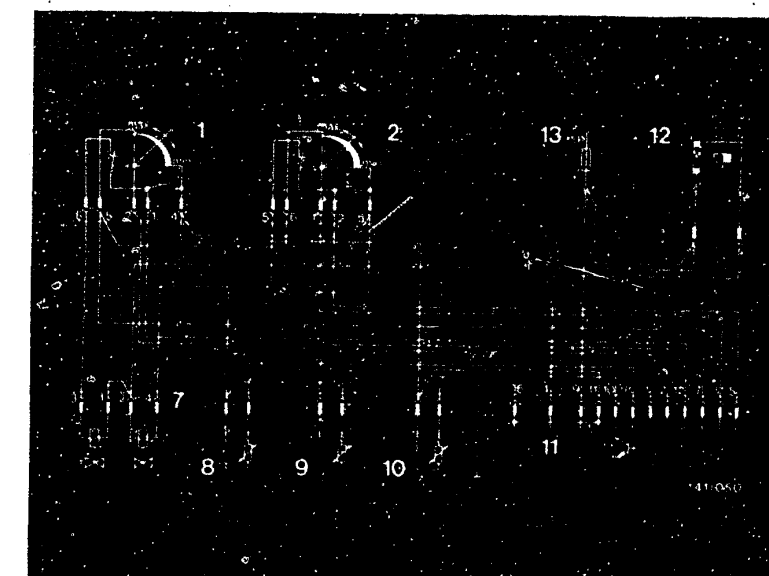
#### Trouble-shooting with multimeter:

Despite reading approx. 9 ... 14 no heating effect: hot-water valve electrically O.K., but mechanically defective - replace.

Note: If system only heats at low engine speed, then replace hot-water valve.



- 7 = Duo hot-water valve
- 7a = Plug for duo hot-water valve
- 11a = Control-unit plug



**C1**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



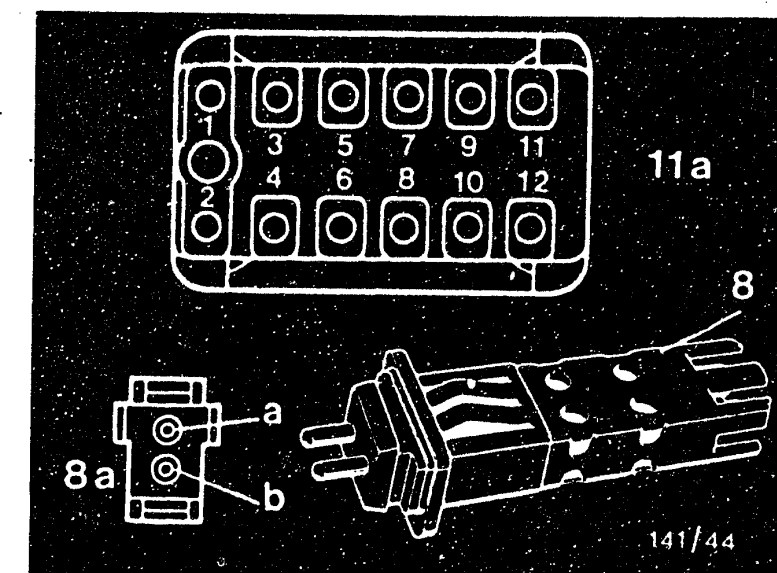
**C2**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



Test step: 10 must come immediately after test step 9.1!		
Operation	Reading	Testing
<div>Rotary switch position (S1)</div> <div>10</div>	<div>On test adapter</div> <div>7 ... 12</div> <div>Slowly falling</div>	<div>Component:</div> <div>Temperature sensor on right-hand heat exchanger</div>
<div>Measuring equipment:</div> <div>Test adapter</div>		<div>Operation:</div> <div>Change of resistance</div>
<div>Measuring range:</div> <div>0 ... 15</div>		
<div>Operation in vehicle:</div> <div>Engine running</div>		
<div>Additional operation:</div>		<div>Malfunction:</div> <div>Reading approx. 0 or approx. 15, not slowly falling</div>



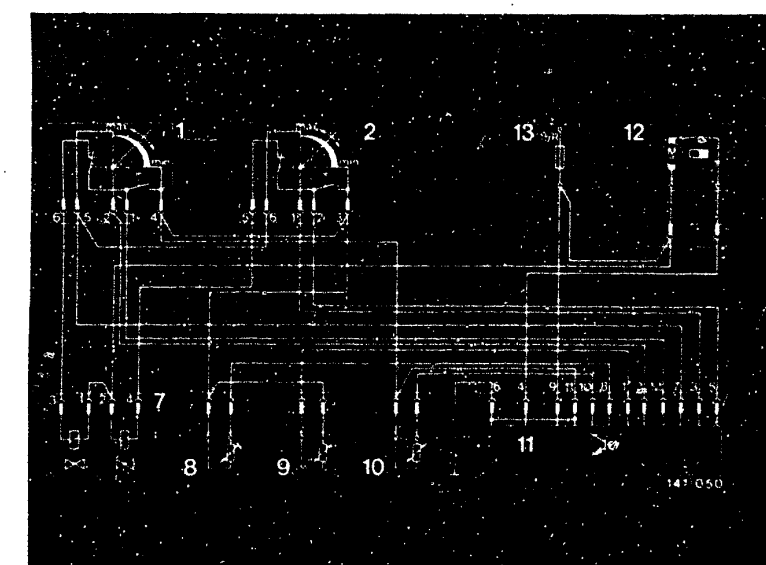
- 8 = Temperature sensor on heat exchanger  
8a = Plug for temperature sensor on heat exchanger  
11a = Control-unit plug

#### Trouble-shooting with multimeter:

Ignition switched off: using ohmmeter, test the following leads for continuity (reading approx. 0  $\Omega$ ): from plug (8a) pin a to control-unit plug (11a) pin 8, from plug (8a) pin b to control-unit plug (11a) pin 11.

Test leads for short circuit: connect ohmmeter to control-unit plug (11a) between pins 8 and 11, reading should be  $\infty$ . (Plug (8a) of temperature sensor removed). Test resistance of temperature sensor: connect ohmmeter between pins. Reading should be approx. 8 - 16 k $\Omega$  at approx. 15 - 30°C at temperature sensor. Spray temperature sensor with refrigerant spray. Resistance must increase. If so, temperature sensor O.K.

Note: If reading does not "fall slowly", the hot water in the heat exchanger may already have cooled down too much. In this case, turn the rotary switch (S1) on the test adapter for at least 15 seconds to position 9 (auxiliary switch (S) unlatched). Then proceed with test step 10.



**C3**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



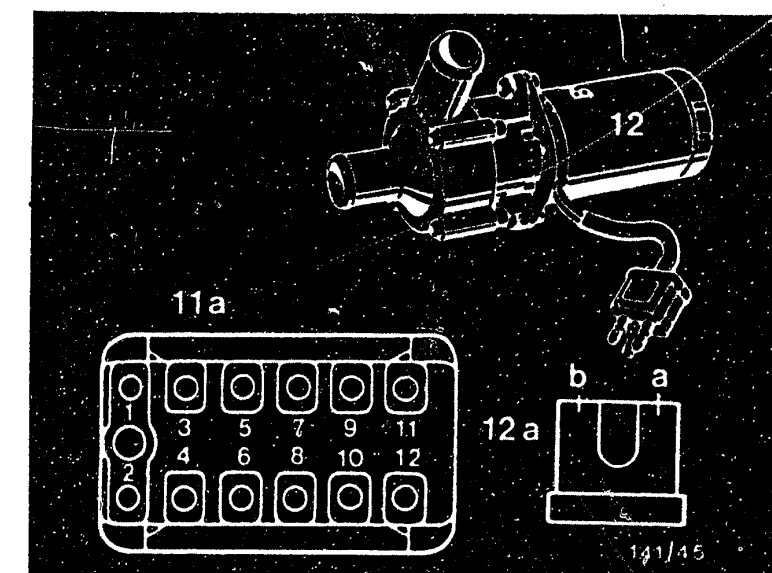
**C4**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



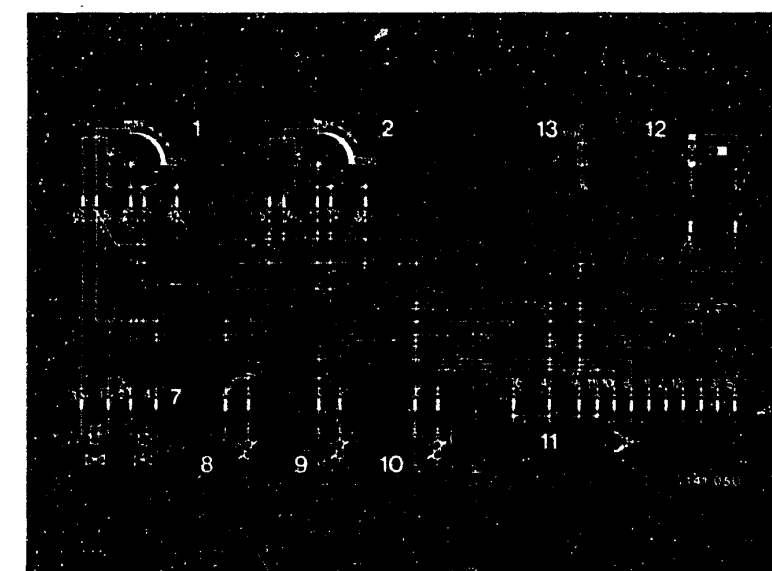
Test step: 11 (hot-water pump is installed as standard in type R 107 and all 8-cyl. models)		Reading	Testing
Operation			
Rotary switch position (S1)	11	On test adapter 0 ... 3	Component: Hot-water pump
Measuring equipment: Test adapter		By feeling/listening, check whether hot- water pump is operating.	
Measuring range: 0 ... 15			Operation: High hot-water throughflow even at low engine speed
Operation in vehicle: Switch off engine. Switch on ignition. Set blower-motor switch to position I			
Additional operation Press auxiliary switch (S) on test adapter.			Malfunction: Hot-water pump not operating



11a = Control-unit plug  
12 = Hot-water pump  
12a = Plug to hot-water pump

#### Trouble-shooting with multimeter:

Using voltmeter, test plug (12a) pin a to ground for approx. battery voltage.  
Switch off ignition. Using ohmmeter, test lead from control-unit plug (11a) pin (4) to  
plug (12a) pin b. Reading approx. 0  $\Omega$ . Test leads for short circuit.  
Eliminate any open circuit/contact resistances at plug-in connections.



**C5**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



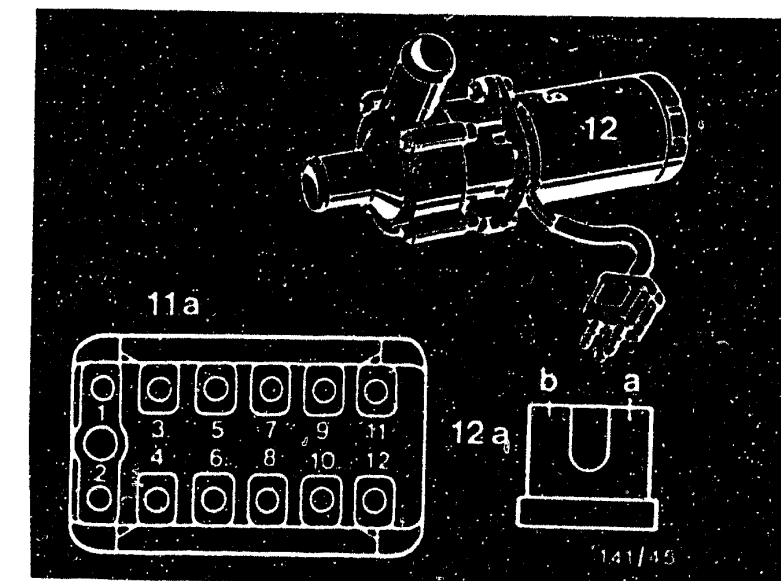
**C6**

Trouble-shooting

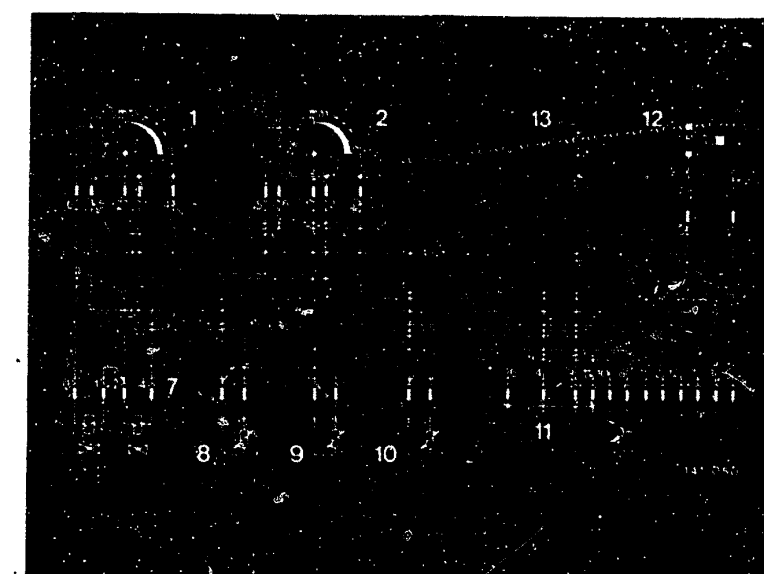
Mercedes-Benz W 126, C 126, R 107



Test step: 11.1 (Hot-water pump is installed as standard in type R 107 and all 8-cyl. models.)		Reading	Testing
Operation			
Rotary switch position (S1)	11	On test adapter 9 ... 14	Component: Hot-water pump
Measuring equipment: Test adapter		By feeling/listening, check that hot-water pump is not operating.	Operation: No high hot-water throughflow at low engine speed
Measuring range: 0 ... 15			
Operation in vehicle: Engine running Blower-motor switch in position I			Malfunction: Hot-water pump operating.
Additional operation: Press auxiliary switch (S) on test adapter once again (unlatch).			



- 11a = Control-unit plug  
12 = Hot-water pump  
12a = Plug to hot-water pump



#### Trouble-shooting with multimeter:

Switch off ignition. Remove plug from hot-water pump. Using ohmmeter, test from control-unit plug (11a) pin 4 to ground. Reading should be:  $\infty$ .

**C7**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



**C8**

Trouble-shooting

Mercedes-Benz W 126, C 126, R 107



Set rotary switch (S1) on test adapter to "0".

Switch off ignition.

Remove adapter lead KDHK 0004 from control-unit plug.

If no fault has been found on the individual components by testing the automatic heating system with the test adapter, but the automatic heating system is still malfunctioning, try replacing the electronic control unit.

Plug the control-unit plug onto the electronic control unit. Then re-check the system according to the vehicle owner manual.

Then re-install the right-hand footwell panelling.



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